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4 March 1970

MEMORANDUM TO: Chief, Planning, Programming & Budgeting Staff, NPIC
THROUGH : Chief, CED & Chief, TSSG
SUBJECT : Twin Stage On-Line PI Comparator

REFERENCE : Speed Letter from Chief, PPBS, dated 20 February 1970, Same Subject

1. The Twin Stage On-Line PI Comparator (TSC) was delivered to TSSG/ESD on 22 October for thorough test and evaluation prior to assignment to an operational component. Prior to delivery, a thorough pre-acceptance test procedure was performed at the Contractor's plant, followed by the same test procedure upon installation in ESD, which constituted acceptance of the instrument from the contractor. The late submission of the Final Contract Inspection Report was due to failure of a Card Punch Coupler for a DIA 880 comparator ~~to operate properly~~ (an add-on to this contract).

2. It is felt the problems disclosed by the T&E performed by ESD were of a nature that could not be determined in the pre-acceptance and acceptance testing, since they required special jigs and tooling which were not made until after the instrument was in the T&E phase. It should be recognized that the T&E phase of an R&D program such as the TSC is a grey area insofar as determining whether or not the instrument meets specifications, since some of the testing is far beyond the scope of the specification.

3. As the result of T&E of the TSC the major deficiencies were defined as follows:

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a. Failure of both stages to track in the same angular direction in the slow mode as directed by the joystick control.

b. Failure of both stages to move simultaneously in the slow pointing mode.

c. Failure to fine focus with the 1.3X and 3X objectives, using the 10X eyepiece.

d. Failure to obtain precise positioning with the existing joystick control.

Since none of the above problems were specifically defined and detailed in the development specification, dated 12 June 1968, the contractor was asked to come in and discuss the situation to ascertain what steps could be taken to overcome the deficiencies. It was determined that "a" and "b" above could be overcome by a different drive system--possibly a stepping motor system; "c" is the result of a slipped relay lens in the optical system. Item "d", after much discussion, cannot be resolved with the present joystick control, and to replace it with a different drive system would require major redesign of the instrument. It was decided the best and least costly approach would be to extend handwheels at convenient operator locations for fine x-y adjustment of both stages. The contractor was then asked to furnish descriptions of the recommended solutions and a cost break-out, since they were considered to be beyond the specification.

4. It is felt the contractor met the specification as written. However, it is virtually impossible when writing development objectives or specifications to cover all the details and contingencies that may

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arise as the result of test and evaluation of a prototype instrument. It is this phase of R&D that determines the changes and modifications that are applied to the engineering model.

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Project Monitor

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